

but none from this reach (Stansbery, 1984, pers. comm.).

Alasmidonta varicosa: Apparently fairly common throughout the headwaters. Widespread throughout the Atlantic coastal drainages.

Alasmidonta undulata: This species is apparently quite rare here as only five specimens were found. Widespread throughout the Atlantic coastal drainages.

Anodonta cataracta: This species does not exhibit a widespread distribution in the headwaters. It is typically found in larger, slower-flowing bodies of water. Only four specimens were found during this study.

Lasmigona subviridis: This small species may be more abundant than my collections indicate. It is a typical Atlantic coastal species and enjoys a widespread distribution in most of eastern North America. It has crossed the mountain barrier on at least one occasion and can be found

in the New River system (a tributary of the Ohio River) of southern West Virginia. One specimen was found at each of three different collecting stations during this study.

Strophitus undulatus: This species is not common. Ortmann (1919) reported it only from South Branch at Romney. I found a single live specimen in Patterson Creek and a badly-weathered half shell in the Shenandoah River.

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A SECOND MELAMPID (PULMONATA: BASOMMATOPHORA) FROM THE EARLY MIOCENE OF VENEZUELA

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ABSTRACT

Pedipes cf. P. mirabilis (Mühlfeld, 1816) was reported by the present authors (1979, p. 22) from the early Miocene (Burdigalian) Cantaure Formation, Paraguaná Peninsula, Venezuela, being the first reported fossil occurrence of the genus. It is described now as the new species *Pedipes mirandus* and is considered to be the ancestor of the Recent cognate species *P. angulatus* C. B. Adams, 1852, from the Eastern Pacific and *P. mirabilis* from the Western Atlantic.

The presence in the early Miocene (Burdigalian) Cantaure Formation, Paraguaná Peninsula, Venezuela, of two members of the family Melampidae was reported by Gibson-Smith & Gibson-Smith (1979, p. 22). One of these, *Tralia cf. T. ovula* (Bruguière, 1789), was later described by these authors (1982, p. 119) as the new species *T. venezuelana*, which lives along the north coast of Venezuela, occurring also in the late Pliocene Mare Formation, Cabo Blanco, Venezuela. This was only the second fossil

record of the genus *Tralia* the other being *T. vetula* Woodring, 1928, from the Pliocene Bowden Formation, Jamaica. The second Cantaure form, *Pedipes cf. P. mirabilis* (Mühlfeld, 1816), the first fossil record of the genus, is likewise now recognized as a new species, *Pedipes mirandus*. It is considered to be the ancestor of the Recent cognate species *P. angulatus* C. B. Adams, 1852, from the Eastern Pacific and *P. mirabilis* from the Western Atlantic. The genus was reviewed by Clench

(1964, p. 119) and the only other Recent taxa of the region are *P. liratus* Binney, 1860, and *P. unisulcatus* Carpenter, 1866, both from the Eastern Pacific.

The author of *Pedipes* was said by both Clench (loc. cit.) and Keen (1971, p. 848) to be Férussac, 1821, the former giving the type species as, "*Pedipes afra* Gmelin (= *P. pedipes* Bruguière), subsequent designation, Gray 1847." Abbott (1974, p. 333), on the other hand, gave the author as Bruguière, 1792, with type species [*Helix*] *afra* Gmelin. According to Clench (loc. cit.) *afra* is a Pfeiffer, 1856, misspelling of *afra*. Zilch (1959, p. 68) was the first to name Bruguière, 1792, as the author, the type species being *Bulimus pedipes* Bruguière, 1789, by tautonymy.

Subfamily Pedipedinae Crosse & Fischer, 1880

Genus *Pedipes* Bruguière, 1792

Type species, by tautonymy, *Bulimus pedipes* Bruguière, 1789.

Pedipes mirandus

Gibson-Smith & Gibson-Smith, n. sp.

Figure 1

Description: Shell minute. Protoconch heterostrophic, submerged, last ½-whorl inclined, smooth. Teleoconch of ¾ shouldered whorls, body whorl globose. Sculpture of flat, subequal spiral cords with narrower interspaces, subsutural cord prominent; 4 cords between it and the shoulder and about 23 below. Surface roughened by crowded, prosocline growth increments. Columella broad, inclined, with two inclined folds, the lower the weaker. Parietal callus narrow, carrying a large fold lying closer to the anal notch than to the upper columellar fold. Outer lip thin, smooth within.

Holotype: Natural History Museum Basel, No. H 17113. Height 2.25 mm, diameter 1.75 mm.

Type locality: Known only from the lower shellbed of the early Miocene Cantaure Formation, Paraguaná Peninsula, Venezuela (GS-1-PGNA).
Paratype: Paleontological Research Institution, PRI 30049.

Remarks: The type material consists of 5 small, complete specimens and, in the absence of even fragments of larger shells, are believed to be mature. While the absence of a labral denticle might suggest immaturity it is not a



FIG. 1. *Pedipes mirandus* n. sp. Holotype, ventral view. Height 2.25 mm, diameter 1.75 mm. Early Miocene Cantaure Formation, Paraguaná Peninsula, Venezuela. NHMB H 17113. SEM micrograph, $\times 25$.

characteristic of all mature *Pedipes*, the equally small *P. liratus* also lacking a denticle (Keen, 1971, fig. 2411). Comparison has been made with juvenile *P. mirabilis* of a similar size. The trivial name is from the same Latin root as *mirabilis* meaning "wonderful" or "singular".

Comparisons: *P. mirandus* n. sp. is most closely related to *P. angulatus* and *P. mirabilis*, the sculpture and outline being similar. In its broad columella it more resembles *P. angulatus* and in the reduced extent of the parietal callus it more resembles *P. mirabilis*. It differs from both in being smaller with 1 or 2 fewer whorls, in having an inclined columella and inclined columellar folds, the lower smaller than the upper; in *P. angulatus* and *P. mirabilis* the columella is vertical, the folds are about equal in size and are horizontal. In both of these, moreover, the parietal folds lies midway between the upper columellar fold and the anal notch, whereas in *P. mirandus* the fold lies closer to the anal notch, dividing the gap into one-third and two-thirds, and it is more horizontally directed.

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